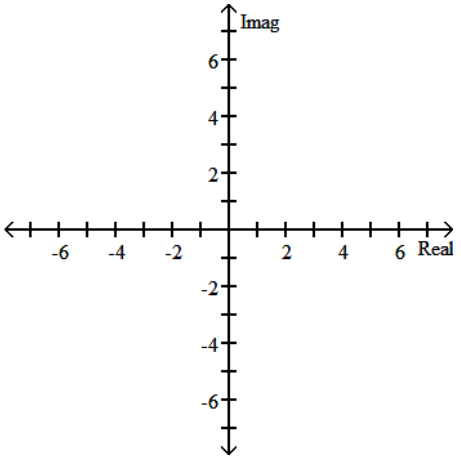
6.4 & 6.6 Trigonometric Form of Complex Numbers

Name_____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

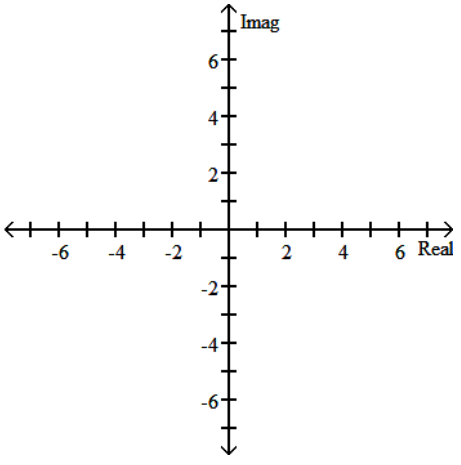
Graph the complex number, and find its absolute value.

1) 2 - 6i 1) _____



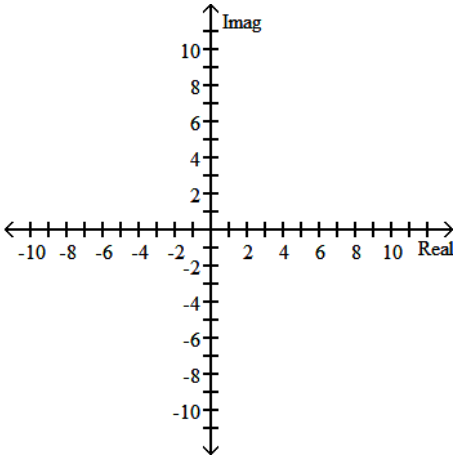
Graph the complex number.

2) 6i 2) _____



3) -9

3) _____



Write the complex number in trigonometric form, using degree measure for the argument.

4) -3 + 3i

4) _____

5) 4 - 4i

5) _____

6) 8

6) _____

7) $i\sqrt{3}$

7) _____

8) $-\sqrt{3} + i$

8) _____

9) 3 + 4i

9) _____

Write the complex number in the form a + bi.

10) $\sqrt{2}(\cos 45° + i \sin 45°)$ 10) _____

11) $3(\cos 90° + i \sin 90°)$ 11) _____

12) $\sqrt{3}\left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}\right)$ 12) _____

Perform the indicated operation. Write the answer in the form a + bi.

13) $2(\cos 150° + i \sin 150°) \cdot 3(\cos 300° + i \sin 300°)$ 13) _____

14) $\sqrt{3}\,(\cos 10° + i \sin 10°) \cdot \sqrt{2}\,(\cos 20° + i \sin 20°)$ 14) _____

15) $\dfrac{4(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3})}{2(\cos \frac{\pi}{6} + i \sin \frac{\pi}{6})}$ 15) _____

16) $\dfrac{4.1(\cos 36.7° + i \sin 36.7°)}{8.2(\cos 84.2° + i \sin 84.2°)}$ 16) _____

Find the product and quotient for each pair of complex numbers, using trigonometric form. Write the answer in the form a + bi.

17) $z1 = (4 + 4i)$, $z2 = (-5 - 5i)$ 17) _____

18) $z1 = (3 + 4i)$, $z2 = (-5 - 2i)$ 18) _____

19) $z1 = (2 - 6i)$, $z2 = (-3 - 2i)$ 19) _____

Find the product of the given coplex number and its complex conjugate in trigonometric form.

20) $3\left(\cos\frac{\pi}{6} + i \sin\frac{\pi}{6}\right)$ 20) _____

21) $2 (\cos (7°) + i \sin (7°))$ 21) _____